AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listing, of claims in the application:

Listing of Claims:

Claim 1 (Previously Presented) A method of measuring the accumulation of anti-tumor drugs by solid tumors comprising,

administering an anti-tumor drug labeled with a positron-emitter to a patient having a solid tumor, and

imaging at least part of the patient using PET,

wherein said anti-tumor drug is an insoluble taxane.

Claim 2 (Original) The method according to claim 1, wherein the solid tumor is selected from the group consisting of breast, lung, ovarian, gastrointestinal, prostate, sarcoma and head and neck tumors.

Claim 3 (Previously Presented) The method of claim 1, wherein the labeled drug is at least one drug selected from the group consisting of ^{11}C-paclitaxel and ^{11}C-docetaxel.

Claim 4 (Previously Presented) A method of determining the efficacy of an anti-tumor drug for treating solid tumors comprising:

administering an anti-tumor drug labeled with a positron-emitter to a patient having a solid tumor; and

imaging at least part of the patient by PET to measure accumulation of the labeled anti-tumor drug,

wherein said anti-tumor drug is an insoluble taxane.

Claim 5 (Previously Presented) The method according to claim 4, wherein the labeled anti-tumor drug is administered prior to a course of treatment of the patient.

Claim 6 (Previously Presented) The method of claim 4, wherein the labeled anti-tumor drug is administered during the course of treatment of the patient.

Claim 7 (Previously Presented) The method of claim 4, wherein the labeled drug is at least one drug selected from the group consisting of ^{11}C-paclitaxel and ^{11}C-docetaxel.

Claim 8 (Currently Amended) A method of measuring the effectiveness of modulators of cellular accumulation mechanisms in tumors comprising:

administering an anti-tumor drug labeled with a positron-emitter to a patient;

administering a modulator to the patient, and

imaging at least part of the patient by PET to measure accumulation of the labeled anti-tumor drug,

wherein said anti-tumor drug is an insoluble taxane;

the accumulation of labeled anti-tumor drug is measured before and after administering the modulator to the patient; and

the levels of anti-tumor drug accumulation before and after administering the modulator are compared.

Claim 9 (Canceled)

Claim 10 (Original) The method of claim 8, wherein modulator affects an efflux mechanism.

Claim 11 (Original) The method of claim 8, wherein modulator affects an influx mechanism.

Claim 12 (Previously Presented) The method of claim 8, wherein the labeled drug is at least one drug selected from the group consisting of ^{11}C-paclitaxel and ^{11}C-docetaxel.

Claim 13 (Previously presented) A method for measuring the effectiveness of a combination of anti-tumor drugs comprising:

administering more than one anti-tumor drug to a patient having a solid tumor, wherein at least one of said anti-tumor drugs is labeled with a positron-emitter, and

imaging at least part of the patient by PET to measure accumulation of the at least one said anti-tumor drug labeled with a positron-emitter,

wherein the at least one said anti-tumor drug labeled with a positron-emitter is an insoluble taxane.

Claim 14 (Original) The method of claim 13, wherein two anti-tumor drugs are administered to the patient.

Claim 15 (Previously presented) The method of claim 13, wherein said labeled anti-tumor drugs is labeled with a positron-emitter.

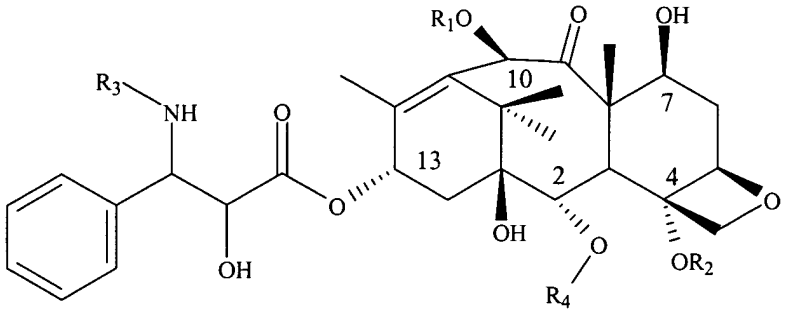
Claim 16 (Original) The method of claim 13, wherein two of said anti-tumor drugs are each labeled with a positron-emitter.

Claim 17 (Original) The method claim 13, wherein a first anti-tumor drug and a second anti-tumor drug are administered simultaneously.

Claim 18 (Original) The method claim 13, wherein a first anti-tumor drug and a second anti-tumor drug are administered sequentially.

Claim 19 (Previously Presented) The method of claim 13, wherein the labeled drug is at least one drug selected from the group consisting of ^{11}C-paclitaxel and ^{11}C-docetaxel.

Claim 20 (Previously Presented) A compound having the formula:



wherein:

R_1 is selected from the group consisting of H, acetate and ^{11}C-acetate;

R_2 is selected from the group of acetate and ^{11}C-acetate;

R_3 is selected from the group consisting of benzoyl, ^{11}C-benzoyl, $-CO_2C(CH_3)_3$ and $-^{11}CO_2C(CH_3)_3$; and

R_4 selected from the group consisting of benzoyl, ^{11}C-benzoyl; and

wherein the compound contains at least one atom of ^{11}C.

Claim 21 (Original) A compound according to claim 20, wherein R_1 is ^{11}C-acetate, R_2 is acetate, R_3 is benzoyl and R_4 is benzoyl.

Claim 22 (Original) A compound according to claim 20, wherein R_1 is acetate, R_2 is ^{11}C-acetate and R_3 is benzoyl and R_4 is benzoyl.

Claim 23 (Original) A compound according to claim 20, wherein R_1 and R_2 are acetate and R_3 is ^{11}C- benzoyl and R_4 is benzoyl.

Claim 24 (Original) A compound according to claim 20, wherein R_1 and R_2 are acetate, R_3 is benzoyl and R_4 is ^{11}C-benzoyl

Claim 25 (Original) A compound according to claim 20, wherein R_1 is H, R_2 is acetate, R_3 is $-^{11}CO_2C(CH_3)_3$. and R_4 is benzoyl.

Claim 26 (Original) A compound according to claim 20, wherein R_1 is H, R_2 is ^{11}C-acetate, R_3 is $CO_2C(CH_3)_3$ and R_4 is benzoyl.

Claim 27 (Original) A compound according to claim 20, wherein R_1 is H, R_2 is acetate, R_3 is - $CO_2C(CH_3)_3$ and R_4 is ^{11}C-benzoyl.

Claim 28 (Original) A method of synthesizing the compound according to claim 20, comprising the steps of:

reacting 10-deacetylpaclitaxel with a chlorotrialkylsilane to yield a protected deacetylpaclitaxel;

reacting the protected deacetylpaclitaxel with ^{11}C-acetyl chloride to yield a radio-labeled silyl protected deacetylpaclitaxel;

removing the protecting groups, and

isolating ^{11}C-paclitaxel.

Claim 29 (Original) A method of synthesizing the compound according to claim 20, comprising the steps of:

reacting paclitaxel primary amine with ^{11}C-benzoyl chloride, and

isolating ^{11}C-paclitaxel.

Claim 30 (Original) A method of synthesizing the compound according to claim 20, comprising the steps of:

reacting docetexal primary amine with ^{11}C-di-tert-butyl dicarbonate, and

isolating ^{11}C-docetaxel.

Claim 31 (Original) A method of synthesizing the compound according to claim 20, comprising the steps of:

reacting paclitaxel primary amine with ^{11}C-di-tert-butyl dicarbonate to give ^{11}C-10-acetyldocetaxel; and

reacting the ^{11}C -10-acetyldocetaxel with hydrogen peroxide to give ^{11}C-docetaxel.

Claims 32-40 (Canceled)

Claim 41 (Previously Presented) A method of measuring the accumulation of anti-tumor drugs by solid tumors comprising,

administering an anti-tumor drug labeled with a positron-emitter to a patient having a solid tumor, and

imaging at least part of the patient using PET;

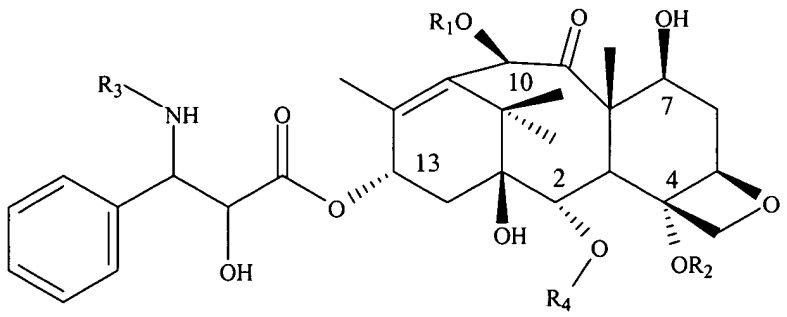
wherein said anti-tumor drug labeled with a positron-emitter comprises an insoluble taxane having a naturally occurring atom replaced with a radioisotope of the same element.

Claim 42 (Previously Presented) A method of measuring the accumulation of anti-tumor drugs by solid tumors comprising,

administering an anti-tumor drug labeled with a positron-emitter to a patient having a solid tumor, and

imaging at least part of the patient using PET;

wherein the anti-tumor drug comprises a compound having the formula:



wherein:

R_1 is selected from the group consisting of H and acetate;

R_2 is acetate;

R_3 is selected from the group consisting of benzoyl and $-CO_2C(CH_3)_3$; and

R_4 is benzoyl,

wherein the compound contains at least one atom of ^{11}C.

Claim 43 (Previously Presented) The method of claim 42, wherein R_1 is ^{11}C-acetate, R_2 is acetate, R_3 is benzoyl and R_4 is benzoyl.

Claim 44 (Previously Presented) The method of claim 42, wherein R_1 is acetate, R_2 is ^{11}C-acetate and R_3 is benzoyl and R_4 is benzoyl.

Claim 45 (Previously Presented) The method of claim 42, wherein R_1 and R_2 are acetate and R_3 is ^{11}C- benzoyl and R_4 is benzoyl.

Claim 46 (Previously Presented) The method of claim 42, wherein R_1 and R_2 are acetate, R_3 is benzoyl and R_4 is ^{11}C-benzoyl.

Claim 47 (Previously Presented) The method of claim 42, wherein R_1 is H, R_2 is acetate, R_3 is $-^{11}CO_2C(CH_3)_3$. and R_4 is benzoyl.

Claim 48 (Previously Presented) The method of claim 42, wherein R_1 is H, R_2 is ^{11}C-acetate, R_3 is $CO_2C(CH_3)_3$ and R_4 is benzoyl.

Claim 49 (Previously Presented) The method of claim 42, wherein R_1 is H, R_2 is acetate, R_3 is $-CO_2C(CH_3)_3$ and R_4 is ^{11}C-benzoyl.

Claim 50 (Currently Amended) A method of measuring the effectiveness of modulators of cellular accumulation mechanisms in tumors comprising:

administering an anti-tumor drug labeled with a positron-emitter to a patient;

administering a modulator to the patient, and

imaging at least part of the patient by PET to measure accumulation of the labeled anti-tumor drug,

wherein said anti-tumor drug is an insoluble taxane and the modulator affects tumor concentration of the anti-tumor drug or normal host cell concentration of the anti-tumor drug;

the accumulation of labeled anti-tumor drug is measured before and after administering the modulator to the patient; and

the levels of anti-tumor drug accumulation before and after administering the modulator are compared.

Claim 51 (Canceled)

Claim 52 (Currently Amended) The method of claim 50, wherein the modulator affects the activity of at least one of an efflux pump or transporter and an influx pump or transporter.

Claim 53 (Previously Presented) The method of claim 50, wherein the modulator changes the baseline normal host cell accumulation of the anti-tumor drug.

Claim 54 (Previously Presented) The method of claim 50, wherein modulator is an MDR modulator.

Claim 55 (Previously Presented) The method of claim 52, wherein modulator is selected from dexverapamil, PSC833, LY335979, GG918, VX-853, Cremophor® and surfactants.

Claim 56 (Previously Presented) The method of claim 50, wherein the labeled drug is at least one drug selected from the group consisting of ^{11}C-paclitaxel and ^{11}C-docetaxel.